DAY 2 ACTIVITY

Hands-On Intro to CRS

— Preparation: Install the QuickMapServices Plugin

Note: Plugins are important extensions of QGIS, because they allow 3rd party developers to write new tools or functions that are directly integrated with the software. Keep in mind, however, that because they are not part of the official release, their reliability quality can vary greatly from one to the next. Once installed, plugins will be be integrated into the QGIS interface (exactly where depends on the plugin).

1. Go to *Plugins* > *Manage & Install Plugins…* Upon opening, the plugin manager will take a few seconds to connect with the online plugin repository. Once finished, you'll have access to all QGIS plugins.
2. Click on the "All" tab at left to make sure that all available plugins are shown.
3. In the search bar at the top of the window type "QuickMapServices".
4. Click on QuickMapServices in the list view, then click the "Install plugin" button in the lower right corner of the window.
5. A pop-up window will notify you that the plugin is downloading.
6. When the plugin is finished installing, click the "Close" button in the lower right corner.
7. To use this plugin, go to the *Web* menu in QGIS.
8. Under *QuickMapServices* you'll see a number of web services that you can now add as layers.
    a. Choose *MapQuest* > *MapQuest Aerial*, and a new layer of aerial imagery will appear

— Task 1: Add Custom CRS for Vernon County

1. Open the GIS_Intro_Packet.qgs project file from Day 1.
    a. If you've lost this file or created some irreconcilable problem within it, you can re-download the GIS Packet from here: http://legiongis.com/pages/introduction-to-gis.html
2. Once you have the project open, take a minute to inspect the current CRS settings for each of your layers, as well as the project CRS
    a. To view the Project CRS, go to *Project* > *Project Properties* > *CRS*
        i. Under "Coordinate reference systems of the world" you'll see all the options available by default
        ii. You should also see one called "*Generated CRS…". Take note!
    b. To view the CRS of each layer, right-click on any layer in the Layers Panel, and select *Set Layer CRS*.
        i. What CRS is used by each layer? Do any of them look familiar?
    c. Some of the layers are using a User Defined Coordinate Reference System, which is the one specific to Vernon County; it's not in QGIS by default. We will rename it so it's easy to recognize from now on.

3. Go to *Settings* > *Custom CRS…* you should see the single "*Generated CRS…" as you saw earlier.
    a. If this is not the case, you can use a text editor to open the file named "proj_vernon.proj4", found in the "projections" folder in the GIS Packet.
    b. Copy the entire contents of that file, and paste it into the Parameters box.
    c. Skip to step 5
4. Click on this CRS to select it
5. Enter "Vernon County ft" in the name box (remove the existing text)
6. Click OK
7. To double check that you've been successful, view the Project CRS again. The selected CRS should now be named "Vernon County ft"

— Task 2: Adding a Delimited Text File, and setting the correct CRS

Note: If you haven't already, download both CSV files located under Day 2 on the class webpage. They are named "vc_dams_GCS_NAD83.csv" and "vc_dams_PCS_VernonCo_ft.csv" Place them in your GIS Packet/data folder.

1. Begin by opening the CSV files in MS Excel or a text editor.
    a. What do they look like?
    b. What information is contained in them?
    c. What do you think the X and Y columns in each one correspond to?
2. Back in QGIS, click the "Add Delimited Text Layer" button in the left-hand panel.
3. Click Browse, navigate to the CSV files, and select the one named "vc_dams_GCS_NAD83.csv"
4. Leave all default options, and notice the X column and Y column definitions.
5. Click OK. Now we get to the important CRS step.
6. Use the filter to find and select GCS NAD83, and click OK.
    a. Did the points show up in Vernon County? Use the MapQuest Aerial imagery to do a bit of inspection.
    b. Also, what would have happened if we had chosen NAD27 as the CRS instead of NAD83?
    c. Do the process again to find out. Be sure to name the new layer with "NAD27" instead of "NAD83" so you can differentiate the two in the Layers Panel.